Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER–III • EXAMINATION – WINTER • 2015

Subject Code: 2630001 Date: 23-12-2015

Subject Name: Structured and Object Oriented Analysis and Design Methodology

Time: 10:30 am - 01:00 pm Total Marks: 70

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 (a) **Do as directed**

1. What are the four basic principles of Modeling? **02**
2. List out the basic symbols used in Data Flow Diagrams with their meanings and example. **02**
3. Define: Generalization **01**
4. The class diagram, component diagram, object diagram and deployment diagram are considered as types of _____ **01**
5. The weak entities are represented in UML diagrams by using aggregations call _____ **01**

(b)

1. Give one advantage and disadvantage of CASE tool. **03**
2. What is JAD? Give purpose and its one advantage. **04**

Q.2 (a) In Food Order system a Customer can place an Order. The Order Food process receives the Order, forwards it to the Kitchen, store it in the Order data store, and store the updated Inventory details in the Inventory data store. The process also delivers a Bill to the Customer. Manager can receive Reports through the Generate Reports process, which takes Inventory details and Orders as input from the Inventory and Order data store respectively. Manager can also initiate the Order Inventory process by providing Inventory order. The process forwards the Inventory order to the Supplier and stores the updated Inventory details in the Inventory data store. **07**

Draw a context level of DFD

Draw a first level of DFD

(b) Draw a UML Class Diagram representing the following elements from the problem domain for a hockey league. A hockey league is made up of at least four hockey teams. Each hockey team is composed of six to twelve players, and one player captains the team. A team has a name and a record. Players have a number and a position. Hockey teams play games against each other. Each game has a score and a location. Teams are sometimes lead by a coach. A coach has a level of accreditation and a number of years of experience, and can coach multiple teams. Coaches and players are people, and people have names and addresses. Draw a class diagram for this in **07**

OR

(b) Consider the air transportation system. Many flights land and depart from city's airport. Some of the big cities may have more than one airport. Every flight belongs to specific airline. The planes may have many flights to different airports. Each plane is identified with serial number and model. E.g. hypersonic. There are specific pilots for each airline and they fly many flights. Each flight is identified by flight number and date on which flight is scheduled. The passenger reserves a **07**

seat for a flight. The seat is identified by a location. Prepare a object diagram for above description

Q.3	**(a)**	Discuss in brief Questionnaires method. Also discuss the use of pyramid structure. funnel structure and diamond structure for arranging questions in logical order.	**07**
	(b)	Discuss the phases of System Development Life Cycle.	**07**
		OR	
Q.3	**(a)**	1. Explain the various roles of System Analyst.	**04**
		2. Discuss the concept of Dialog Design.	**03**
	(b)	1. Discuss concept of composition in class diagram.	**04**
		2. Write a note on Structured English.	**03**
Q.4	**(a)**	Explain Object Oriented Themes	**07**
	(b)	Draw Context Level, 0-Level Data Flow Diagram (DFD) & Use Case Diagram for a Library Management System. Make assumptions about the system by your own.	**07**
		OR	
Q.4	**(a)**	Explain Data Dictionary in Detail with example.	**07**
	(b)	Write short note on structural diagrams in UML.	**07**
Q.5	**(a)**	Draw Use case diagram and Class diagram of ATM system with proper explanation of classes.	**07**
	(b)	Discuss the concept of Generalization with example.	**07**
		OR	
Q.5	**(a)**	In Object Oriented Modeling concept, discuss aggregation and association concept giving example.	**07**
	(b)	Draw a sequence diagram showing complete interaction for filling railway reservation form for a passenger and getting conformed tickets from railway officer.	**07**

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